

Value-creating Process Management in Knowledge-based Enterprise

Zuzana Pecinová¹, Lenka Branská¹

Abstract The implementation of the integrated process management enables to get the new information and to generate knowledge on the course and results not only particular business processes and company process system but supply chain processes, too. In the paper the knowledge management concept is used for performance improvement of both internal and supply chain processes in terms of Quick Response principles implementation.

Keywords - Integrated process management. Industrial enterprise. Supply chain management. Data. Knowledge. Quick Response. Performance improvement.

I. INTRODUCTION

Current economic crises significantly increased insecurity in business. According to preliminary estimation Czech Republic gross domestic product without price, season and calendar influences decreased year-to-year by 3,4%. This is the highest quarterly year-to-year drop in history of independent Czech Republic [3]. In principle all spheres of business are dealing with significant reduction of orders with effects on utilizing resources as well as difficult access to financial sources which leads to increase of costs, decrease of effectiveness of entrepreneurship and worsening financial solvency. On the other hand current crisis creates space for new or innovated products and services development, improvement of internal company processes, building deeper relationships with suppliers and customers and last but not least development of human resources with a clear target not only to increase efficiency and effectiveness of business, but also to create competitive advantage for economy growth period. Those businesses that focus on increase of their own performance during times of demand downfall, may gain substantial draw away when the market starts to reactivate.

II. USAGE OF KNOWLEDGE MANAGEMENT PRINCIPLES DURING SUPPLY CHAIN CREATING

More then ever we can say successfully developing businesses are those that are able to react flexibly to changes in conditions in the market, monitor and regularly analyze level of their efficiency and invest in its growth [8].

Therefore basic way how to strengthen efficiency of the company in changed conditions is developing principles of

¹ Authors are with the Faculty of Chemical Technology, Department of Economy and Management of Chemical and Food Industries, University of Pardubice, 95, Studentská, Czech Republic

higher prosperity of the company. Knowledge management is systematic and organized method of search, selection and organization and utilization of knowledge in the aiming at creating value, improve performance and achieving strategic goals [6]. Main task of knowledge management is to offer the right knowledge to the right people in the right time so that they can use it for effective achievement of business goals. It is systematic management of producing, acquiring, sharing and using of knowledge. Fundamental role belongs to positive influencing inter-company environment for development and use of intellectual capital hand in hand with modern technologies [6].

Although development of knowledge management in this way of understanding undoubtedly offers an opportunity to increase efficiency of inter-company processes, it is also possible to see knowledge management in broader and more complex concept. As well as the company tries to develop management of its own inter-company processes in mutual partnership with suppliers and customers, it can similarly develop principles of knowledge management. It means purposeful execution of creation, harvesting, sharing and utilization of knowledge and information especially with strategic partners. Sharing with them idea how to manage all supply chain and utilize consequential arising information and knowledge for substantial efficiency of performance will lead to increase of value for the whole group and its individual members.

Just a single thought of company management as a system of mutually linked processes and building strategic partnerships (as recommended in ISO 9001:2008) helps strongly to increase their performance. The system then generates bulk of data and information about course and results of processes that are in it. Those can be afterwards used for improvement of substantial processes with a goal to achieve global optimum. [4]. It is wise to secure that system will not be overloaded by non-utilisable information, respectively it is important to create a system that works with information and knowledge with interest of their best use. Company must adjust to receiving, processing and creation of new knowledge in advance. It is about an ability to combine cognition and create new knowledge.

A. Possibilities of successful supply chain management

Climactic pressure of competitive environment on one side and possibilities of information technologies on the other one, lead to a fact that value-creating process management over-ranges frontiers of individual companies. Inter-connection in supply chains by building strategic partnerships allows reaching considerable higher level of effectiveness and

efficiency while still meeting requirements and needs of end consumer and consequently even better business results of all members of the chain.

Strategic management of value-creating process must be conformed to a thought of quickness and efficiency, i. e. it is necessary to bear in mind principles of Quick Response while building it. According to Allan [1] QR is business strategy for shortening the cycle time for a product to be made, distributed, and sold at retail and for reducing the overall cumulative inventory of that product in the supply chain. Quick response (QR) can be understood as set of methods that must be implemented in mutual relations so that increase of flexibility and efficiency will happen. Quickness is especially important as the future is moving so quickly that you cannot anticipate it. We have put a tremendous emphasis on quick response instead of planning [7]. However the only attempt for quickness will not result in desired effect. Promptness of chain reaction, respectively company, must be useful not only for customers, but also for businesses themselves. It means fastness must be executed without negative influence on efficiency; it is needed to use principles of quickness and flexibility to increase efficiency.

Supply chains can be basically established in two ways. When it is considered as complex systemic way then supply chain system is built as an answer to questions how and by whom the requirements of end consumers can be met in the best way. Inter-connection but also can be found useful when companies seek options for faster and more efficient run of their own internal processes and they decide to connect with an individual customer and specific supplier or suppliers. Choice of best possible partners is subjective in this case and is not systemic solution in complex concept yet it can come up with partial results and it is often the first step during building supply chains in real life.

B. Process of supply chain management

Process of management of value-creating process in supply chain can be described in these steps:

1. Analysis of information (reasons, assumptions and criteria for partner selection).

Before initial decision about building supply chain it is necessary to find out if good reasons (drivers) exist for creating and also if basic general rules (facilitators) are met for its function. According to Grant [5] basic reasons to partnership are: asset/cost efficiency, customer service, marketing advantage and profit stability/growth. Feasibility of a partner can be namely decided upon applying principles of differentiated CRM based on customer value. Considering values of individual customers as well as values that are provided to the company at the entry by individual suppliers forms a base for identification of the most important chains, especially network of value-creating systems. [2] Basic general assumptions of future successful cooperation must be according to Grant [5]: corporate compatibility (culture and business interests), management philosophy and techniques (organizational structure, use of TQM, types of motivation used, importance of teamwork and so one), mutuality (willingness to share financial information and integrate systems) and symmetry (relative size in terms of sales,

relative market share in their respective industries, financial strength, productivity, brands image/reputation and technological sophistication).

2. Selection of companies for chain.

Should sufficient reasons exist for building supply chains, company then selects convenient partners based on differentiated CRM and verifies if assumptions of future successful collaboration are met and if partners seem to be interested in cooperation.

3. Selection of closeness of cooperation (coordination, cooperation, integration).

Once selection of best possible business partners has been finished, decision about closeness of cooperation needs to be taken. In general company may enter into three basic types of cooperation:

Type I (coordination) – the organizations involved recognize each other as partners and, on a limited basis, coordinate activities and planning. The partnership usually has a short-term focus and involves only one division or functional area within each organization.

Type II (cooperation) – the organizations involved progress beyond coordination of activities to integration of activities. Although not expected to last “for ever”, the partnership has a long-term horizon. Multiple divisions and functions within the firm are involved in the partnership.

Types III (integration) – the organizations share a significant level of integration. Each party views the other as an extension of their own firm. Typically no „end date“ for the partnership exists. [5]

4. Collection and processing of information relevant to integrated management of material flow.

Basic assumption and also barrier for effective establishment and operation of supply chains is sharing information and knowledge across the chain. It is necessary to share relevant information for decision about form of value-creating process within selected closeness of partnership. Information is mainly:

- market – especially relevant to served segments of end consumers and
- about current logistic possibilities of individual members built supply system (production, stock, transport capacities).

5. Setting logistic targets of chain linked to business goals.

Based on shared information relevant for Supply Chain Management goals should be specified for the whole chain, which then predetermine not only its form, but also form of individual parts (i. e. form of management of activities within each involved company). General requirements for speed and efficiency must be transformed into concrete measures covering logistic efficiency (e.g. quickness of reaction to customer requirements, time kept of raw materials and supplies in chain, total amount of stock in chain in monetary units etc.) .

6. Specification of logistic structure, logistic processes and their internal form for realization of logistic goals of chain.

Having set goals, form of value-creating process is specified and desirable (logistic) strategies are sought leading to expected performance of chain. Suitable methods for inter-companies management and inter-company value-creating processes should be put in practice so that everything is to the purpose and efficient. Decision can e. g. be made to use strategies PULL, PUSCH, or their relevant combination and installing delivery based on P-system, Q-system, or their combination. Activities of value-creating process can be distributed to individual members – e. g. realization of automated supply (replenishment), or warehouse operations and further on transport and manipulation operations. In this step space arises for sharing knowledge, i. e. procedures of one or two companies in chain can be shared and developed, it means principles of logistic management of company can be utilized for the whole supply chain. Logistic structure adjusts to proposed form of process, i. e. setting individual logistic parts of system (number and their setting). Result of the setting should be such setting of performance stable logistic parts so that material flow through the whole chain runs base on multi-step production management and logistic optimized inter-production manipulations.

The whole system of course must contain also involved independent intermediaries and output must satisfy the right end user. Final form of value-creating process becomes shared knowledge at an inter-company level.

7. Setting logistic targets of individual members of chain (individual companies) with respect to the whole chain logistic targets.

Having finished previous phase of strategic management of value-creating process, coordination of individual company's performance within a chain must be secured. Basically individual tasks must be understood by individual companies so that material flow is the smoothest as possible and performance of each part of the system contributes optimally to total performance. In general total goals of chain must be cascaded to partial goals when they become a base for activity of involved parts.

8. Setting internal logistic processes and their optimization.

Assessment of expected performance of individual parts of chain through partial goals is a basis for setting and optimization of internal processes in individual companies as partial part of complex value-creating process. Not only this means proper company logistic processes arrangement, but also whole process systems in individual companies. Idea of value-creating management must be shared also among employees executing other inter-company processes. This suggests proper form of knowledge management at level of individual companies.

9. Setting system of indicators for measurement performance of chain, individual companies and processes.

To be able to manage performance of chain, companies involved and individual processes it is desirable to record in a relevant way their actual performance and compare it with target performance. Decision should be taken in which places of chain and what indicators will be recorded. It is also

advisable to prepare those in mutual relations so that individual indicators make comprehensive system of performance management.

10. Implementation of chosen logistic strategy.

Implementation of chosen logistic strategy refers to built system for whole material flow. Usually these steps are included:

1. Conclude agreements about cooperation among involved companies.
2. Establish team that will manage transformation into integrated supply chain management.
3. Prepare a clear plan for this transformation.
4. Interconnect information flows and communication among companies in chain.
5. Invest strategically with a goal to achieve desired logistic structure and desired form of logistic processes.
6. Re-create organization structures of individual companies so that desired progression of value-creating process can be achieved.
7. Implement processes and their performance management into company documentation systems [1, modified].

11. Tactically-operative management of value-creating process (sub-processes and processes, individual companies and chain as a whole).

Tactical-operative management of value-creating process based on Quick Response means pulling material in chain base on collaborative planning and forecasting and shared information about actual needs of end consumers. Forecast of demand creates possibly for pre-work for future quick reaction. Immediate market information allows creating knowledge of needs of end users and consequently allows flexible and speedy creation of value for customer, i. e. fast and flexible material flow through the whole supply chain.

12. Check and feedback (performance management and its sustainable growth based on global optimum).

Course of individual processes of complex value-creating process (working within given system) generates important information. This information originates from:

- individual company sub-processes and processes,
- individual companies as parts of chain,
- the whole chain

and it can be used to evaluate their performance. On principle it is about evaluation of concord between target and real performance, analysis of deviations and accepting corrective measures. If this process is at a level of sub-process or processes, results may be used for their regulation. Danger should be avoided that corrective measures would lead to local optimum. The broader context information is shared the better utilizable. Performance management of one company may result in global optimum search but it does not necessarily mean efficiency increase in the whole chain. It would mean only non-effective costs. It is important to evaluate performance of the whole chain and contribution of individual companies to total performance.

Bulk of information accessibility and possibility of its complex analysis may flow into finding creative improvement

(came into being anywhere in chain), i. e. into knowledge created based on intuition and knowledge. It is executable only in case company possesses enough intellectual capital. It is important to say that systematic management of creation, gaining, sharing and using of knowledge is capitalizing upon it, but also it develops intellectual capital of company. Knowledge management realization within individual companies but in mutual consequences with partners in chain has significant influence on leveraging performance in its continual improvement.

III. CONCLUSION

Basic prerequisite and also barrier for establishing and operating supply chains is sharing information across chain. It is in fact permanent penetration of current information, creating and sharing know-how. This sharing means increase threat of leak and/or misuse of information and/or knowledge. Should there be such misuse most likely it would be a serious obstacle for future cooperation within supply chain. Therefore similar principles must be in the whole chain and rules preventing from misuse of information and knowledge as it is so within individual companies (setting access rights, special clause in work contracts, sanction setting etc.).

Similar problem is sharing information needed to measure economic results of chain and their distribution. As participation of individual companies in supply chains is unambiguously motivated by such economic benefits, which individual company is not able to achieve or sustain without mutual cooperation, economic benefits of chain must be measured as a whole and rules must be set for their fair allocation. Right setting of economic relations by all means influences form and stability of the whole chain.

Especially for these reasons realization of this way conceived knowledge management of asset interconnected groups seems to be the easiest. It means then to apply principles of management of individual companies to groups as a whole, i. e. in fact to manage mutually connected process system accompanied by suitable economic one.

REFERENCES

- [1] Allen Jr. Quick Response: The Consumer's Handshake with Manufacturing at Union Tools. *National Productivity Review* (1986-1998), Vol. 14, No.3, 1995.
- [2] Branská, L., Pecinová, Z., The influence of Quick Response Method on Quality Management System. *Perspectives of Quality*, (in Czech), (in print).
- [3] GDP, National Accounts, Period: 1st quarter of 2009 [on line], 2009, http://www.czso.cz/eng/redakce.nsf/i/gdp_national_accounts_ekon
- [4] Goldratt, E. M., *Critical Chain*. InterQuality, Prague, 1999, (in Czech), ISBN 80-902770-0-4.
- [5] Grant, D. B., Lambert, D. M., Stock, J. R., Ellram L. M., *Fundamentals of Logistics Management: European Edition*. The McGraw-Hill, London, ISBN-10 0-07-710894-9.
- [6] Knowledge management [on line], 2000, <http://knowman.akamonitor.cz/> (in Czech).

- [7] Knowledge Management for e-Business [on line], 2000, <http://www.kmnetwork.com/CBK/WorkingKnowledge1.pdf>.
- [8] Pavelková, D., Knápková, A., *Company Performance from the Point of Financial Manager View*. Linde, Prague, 2005, (in Czech), ISBN 80-86131-63-7..